

REMARKS

Claims 1-12 are pending in the application. It is submitted that this Argument is fully responsive to the Office Action dated March 24, 2008.

Claim Rejections - 35 U.S.C. §103

Claims 1-12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Takenaka et al. (USP 5,357,433) in view of Yamajima (USP 3,655,003).

This rejection is traversed. It would not have been obvious for one of ordinary skill in the art, to provide the force sensor mechanism, as taught by Yamajima, to Takenaka et al., in order to provide a force detecting means for the force exerted on the robot foot.

(1) Regarding Takenaka:

Takenaka does not disclose precisely what the examiner pointed out in his Office Action Letter, page 3, lines 10-11, namely “the force sensors provided to the regions next to end edges of respective soles detect a contact of foot sides (Col 3, lines 44-45).” What Takenaka discloses is, as “1. Field of the Invention” of Column 1, “This invention relates... more particularly to a system for generating a gait (walking pattern) for a legged mobile robot using biped locomotion, which enables the robot to satisfy the conditions for dynamic equilibrium and achieve stable walking even when walking on uneven terrain not constituted by a single plane.”, not walking on a single plane as the premise, but the art to walk on a plurality of planes such as concave and convex planes.

In Takenaka's Summary of the invention, the object as mentioned below is explicitly disclosed based upon what is mentioned above.

A first object of the invention is to provide a system for generating a gait (walking pattern) for a legged mobile robot which expands the ZMP concept to enable a gait generation for stable walking even on uneven terrain and in other situations where ground contact is made with two or more planes simultaneously.

And in Takenaka, touchdown switches 38 is provided in addition to a six dimensional force and torque sensor 36. Among these sensors, it is disclosed in Column 3, lines 44-47 that touchdown switches 38 are "touchdown switches 38... for detecting whether or not the foot is in contact with the ground", and the detection of foot side like that of the present invention is not explained at all.

Also, the output from touchdown switches 38 is memorized in RAM54 (Column 3, lines 66-68), and moreover, the matter below is explained in Column 4, lines 5- 9.

The second processor 62 fetches the target joints angles and measured joint angle from the RAM 54, computes control commands of the individual joint motors and sends the same to associated servo amplifiers thereof via a D/A converter 66.

According to this description, the output from touchdown switches 38 seems to relate to adjustment of a gait, but since contact at a foot side is not detected, it differs from the present application.

(2) Regarding the present claimed invention:

The present claimed invention is the art created for maintaining walk stability upon walking when a foot contacts an object on a walking plane while the raised foot is moving, and hence is characterized in that the contact at a foot side is detected. (See the present Specification, [0002]-[0007].)

(3) Regarding Yamajizna:

The Office Action Letter, page 6, lines 4-9 explains that “Yamajima shows an upper sole and a lower sole (Fig 1, platform 11 as lower sole, base 13 as upper sole; Col 2, lines 5-40), and the force sensor is provided between the upper sole and the lower sole (Col 2, lines 5-Col 3, line 30; Fig 2, Abstract; where the weight machine is the force sensor), and wherein the lower sole is provided with side wall rising upward at a part next to the outer edge of the foot portion (Fig 1, platform 11 as lower sole, base 13 as upper sole; Col 2, lines 5-40).”

However, Yamajima’s lower sole which the Office Action Letter explains is not provided with “side wall rising upward at a part next to the outer edge of the foot portion” of the present invention. That is, “side wall rising upward” of Yamajima’s lower sole is not the element to detect contact from a side, but entirely different element having a different function. Also, Yamajima does not disclose at all a part corresponding to “side wall rising upward”. It is a mere cover as far as seen in a figure.

Therefore, even if Yamajima has a element such as “side wall rising upward”, since it is not a element to detect contact of foot side, no motivation or inclination to be applied to Takenaka exists.

From the above, it could not be thought upon spontaneously by persons skilled in the art to apply Yamajima’s element to Takenaka’s. First of all, Yamajima does not disclose “side wall rising upward” of the present claimed invention.

Failure of establishing a prima facie case of obviousness

Moreover, with regard to independent claims 1, 5 and 9 regarding the disclosure of Takenaka, the Examiner clearly acknowledges the drawbacks and deficiencies of Takenaka, that is, Takenaka does not disclose *“wherein the foot portion includes an upper sole and a lower sole, and the force sensor is provided between the upper sole and the lower sole, and wherein the lower sole is provided with a side wall rising upward at a part next to the outer edge of the foot portion.”*

In an attempt to cure the above-noted drawbacks and deficiencies of Takenaka, the Examiner relies on the teachings of Yamajima and alleges that Yamajima discloses the above-mentioned claimed features (for example, page 6 of the Action).

Specifically, the Examiner alleges that:

Yamajima shows an upper sole and a lower sole (Fig. 1, platform 11 as lower sole, base 13 as upper sole; column 2, lines 5-40), and the force sensor is provided between the upper sole and the lower sole (column 2, line 5 to column 3, line 30; Fig.2; Abstract; where the weight machine is the force sensor), and wherein the lower sole is provided with side wall rising upward at a part next to the outer edge of the foot portion (Fig. 1, platform 11 as lower sole, base 13 as upper sole; column 2, lines 5-40).

In other words, the Examiner appears to allege that if a weighing machine of Fig. 1 of Yamajima is turned upside down, the platform 11 will be located at the bottom of the machine (that is, lower sole). Also, the platform 11 will have a side wall rising upward at a part next to the outer edge of the base 13. However, it is believed that the Examiner failed to establish a *prima facie* case of obviousness.

Inoperability

Specifically, it is believed that the alleged modification of the Examiner renders the Yamajima reference unsatisfactory for its intended purpose, and thus there is no suggestion or motivation to make the proposed modification, which is required to establish a *prima facie* case of obviousness. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); also *MPEP 2143.01 Suggestion or Motivation to Modify the References*.

Especially, the court of *In re Gordon* stated that:

If the prior art device was turned upside down it would be inoperable for its intended purpose because the gasoline to be filtered would be trapped at the top, the water and heavier oils sought to be separated would flow out of the outlet instead of the purified gasoline, and the screen would become clogged.

The first objective of Yamajima is to provide a weighing machine having a weighing mechanism adapted to indicate the optimum relation between height and weight, wherein lighting of lamps indicates legibly and clearly whether the weight of a weighed person is optimum for his or her height. In addition, the second objective of Yamajima is to provide a weighing machine adapted to indicate through said lighting of lamps whether an actual weight of the weighed person is optimum or not and at the same time to indicate a degree of over or under weight according to the position of the particular lamp which is lit (see column 1, lines 23-34).

To achieve these objectives, Yamajima discloses a weight scale that includes a platform 11 on which an individual stands. As shown in Fig. 1, the platform 11 is positioned at the upper surface of the scale. Also, the platform 11 has a window 12 through which scales are read. In this regard, if the scale is turned upside down as modified by the Examiner, the window 12 cannot be read, and thus the scale would be inoperable for its intended purpose.

Moreover, the weight scale of Yamajima includes a blue lamp 15 arranged on the center line of the upper surface of the scale, two yellow lamps 16 and two red lamps 17 which are symmetrically provided at both sides of the blue lamp 15. In the operation, in case of the optimum weight for a particular height, the blue lamp 15 is continuously lit. In case of the optimum weight value \pm 5kg, the yellow lamp 16 is lit. In case of the weight over this range, the red lamp 17 is lit. In this regard, if the scale is turned upside down as modified by the Examiner, the lamps 15, 16 and 17 cannot be seen, and thus the scale would be inoperable for its intended purpose of indicating whether the weight of a weighed person is optimum for his or her height.

Furthermore, the weight scale of Yamajima includes a knob 25 projecting from the upper surface of the platform 11 as shown in Fig. 1. The knob 25 is connected to a gear 26 which engages with teeth 27 of a height scale plate 24 as shown in Fig. 2. Slidable contact plates 20, 21 and 22 are secured on the height scale plate 24, and connected to the lamps 15, 16 and 17, respectively to flow current to the lamps 15, 16 and 17 when connected to a movable contact 19. Accordingly, by rotating the knob 25, the height scale ring 24 is also rotated to align the height of the person with the indicator 29. This rotation causes the alignment of the slidable contact plate 20 with the optimum weight of the person such that the blue lamp 15 will be lit when the movable contact is positioned at slidable contact plate 20.

In this regard, if the scale is turned upside down as modified by the Examiner, the knob 25 would be broken, or at least cannot be rotated. Thus, the scale would be inoperable for its intended purpose.

Accordingly, the Examiner's modification renders the Yamajima reference unsatisfactory for its intended purpose, and thus there is no suggestion or motivation to make the proposed modification, which is required to establish a *prima facie* case of obviousness.

Non-analogous Art

Moreover, Yamajima is non-analogous art. Yamajima relates to a weighing machine. Therefore, Yamajima is not in the field of the endeavor of the present application. Moreover, the objective of Yamajima is to provide a weighing machine having a weighing mechanism adapted to indicate the optimum relation between height and weight, wherein lighting of lamps indicates legibly and clearly whether the weight of a weighed person is optimum for his or her height. Therefore, Yamajima is not reasonably pertinent to the problem to be solved by the present claimed invention.

In view of the above, it is believed that the Examiner failed to establish a *prima facie* case of obviousness. Moreover, withdrawal of the Examiner's reliance on Yamajima is requested.

Accordingly claims 1, 5 and 9 distinguish over Takenaka et al. and Yamajima.

Application No.: 10/517,377
Art Unit: 3664

Request for consideration under 37 CFR §1.116
Attorney Docket No.: 043082

Claims 2-4, 6-8 and 10-12 are dependent from claim 1, 5 or 9 and recite the additional features set forth therein. Accordingly claims 2-4, 6-8 and 10-12 also distinguish over Takenaka et al. and Yamajima for at least the reasons set forth above.

In view of the aforementioned remarks, Applicants submit that the claims are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Thomas E. Brown
Attorney for Applicants
Registration No. 44,450
Telephone: (202) 822-1100
Facsimile: (202) 822-1111

TEB/TN/ya